**Remarks of FCC Commissioner Michael O'Rielly**
**Before 7th Congreso Internacional de Espectro**
**Bogotá, Colombia**
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Thank you, Ms. Taylor, for the kind introduction, and I am flattered to have been invited by ANE to attend your conference. It is truly an honor to be with you today to share some U.S. perspectives on spectrum policy and to provide an update on the activities of the Federal Communications Commission (FCC). Of course, this is a broad topic so I will limit my comments to some discrete areas. I don't want to bore you too much and risk never being invited back!

I was fortunate to have attended WRC-15 in Geneva and more recently the CITEL PCC.II meeting in Orlando, where I had the opportunity to meet with some distinguished guests also attending this conference. While you may have felt that my attendance in Orlando followed typical protocol where a host nation ensures a representative from their national regulatory authority attend, I had heard that my attendance at CITEL created quite the stir in the U.S. Delegation. Apparently, FCC Commissioners haven't been making appearances at such events during the previous Administration. Well, that may have been the case in the past, but this Commission is committed to regional engagement and I personally always appreciate the opportunity to discuss and share ideas about the various spectrum issues that face our countries, especially within our region.

These conferences and ministerial meetings have driven home the importance of our region having a united front and strategy when it comes to spectrum policy generally and, specifically, as we approach international conferences, such as the next ITU Plenipotentiary Conference and WRC-19. My firsthand observations from these conferences solidified, in my mind, how difficult it can be to arrive at consensus decisions, especially when it comes to spectrum. I also fully appreciate the need to start the communications between our countries as early as possible so that we are effective in executing on our main priorities.

As far as the U.S. perspective, our priorities generally seek to create a regulatory environment that provides our telecommunications industries the opportunity to innovate, obtain investment and ensure continued growth for years to come. We also seek to promote the interests of our citizens, especially those who are unserved and in need of modern and robust connectivity in order to participate in the new digital economy.

*Commercial Wireless Spectrum*

Lately, the focus of such international meetings has been on facilitating next generation technologies, especially 5G wireless broadband networks. The promise of 5G is that it will be able to meet the demands of a broad range of applications, from high-definition video and virtual reality to remote surgery and autonomous vehicles. While there is no firm definition, everyone agrees that next generation networks will provide greater capacity, faster speeds and lower latency. If expectations materialize into reality, we could have the first truly terrestrial, high-speed, high-capacity, fully-seamless wireless Internet experience, that includes wireless backhaul. It is expected that 5G will fundamentally change the way people use the Internet and even change business culture, and everything will be mobile. Globally, by one estimate, it is expected that 5G will generate $12.3 trillion in economic output and 22 million jobs.

At the FCC, there has been much effort on ensuring that adequate spectrum resources are available to bring 5G to fruition. To some, 5G has come to mean millimeter waves, but like many, I look at next-generation networks as maximizing the capabilities of both current and future networks, licensed and unlicensed, using low-, mid- and high-band spectrum, including millimeter wave frequencies. As the demand for mobile broadband is projected to grow exponentially, the United States has – and will continue to – identify and examine additional spectrum in all bands to meet the needs of our citizens and industries.

*Low-Band Spectrum.* While most are not focusing on low bands for 5G services, one U.S provider has announced that they will initiate 5G in the 600 MHz band. As you know, the FCC recently completed the world's first voluntary incentive auction, making 70 megahertz of licensed spectrum in the 600 MHz frequency band available for mobile broadband use, while still ensuring a vibrant broadcast community. The auction revenues were approximately $19.8 billion, and over $10 billion of these funds will go to the participating broadcasters, who can use the money to improve programming and upgrade their technology for remaining stations, and more than $7 billion will go to the U.S. Treasury. I would go into further detail, but the broadcast incentive auction is the subject of my remarks tomorrow at the Latin American Spectrum Conference. I wouldn't want to preempt my own remarks.

*Mid-Band Spectrum*. In the mid-range bands, the U.S. has opened up 150 MHz of spectrum previously unavailable for commercial use in 3.5 GHz. Importantly, this spectrum will be made available through a dynamic Spectrum Access System that will enable sharing with U.S. government incumbent users. The FCC, under the last administration, set up a three-tiered structure that would protect incumbents, while providing for licensed use, through priority access licenses (PALs), along with unlicensed use, known as general authorized access. When the rules were adopted, this was considered to be an experiment using spectrum that was underutilized.

Since adoption of these rules, this band has become a focal point for 5G deployments both domestically and internationally, and key stakeholders have expressed that the current PAL structure is not conducive to such extensive, small cell networks. At the Chairman's request, I have been conducting a review of our 3.5 GHz band rules to ensure that they maximize innovation, investment and the efficient use of these frequencies. While I do not seek to disrupt the current three-tiered structure, it has become apparent that improvements are needed to make the PALs more functional. Ultimately, the record will inform the Commission's decision, but most stakeholders acknowledge that licenses without renewability, that cover very small geographic areas, with short license terms do not provide the needed certainty for large scale investment. I am optimistic that the Commission will consider a notice of proposed rulemaking this fall.

And, last month, the Commission started a proceeding to explore additional mid-band frequencies that could be used for 5G. Interested parties will be able to point out any bands between 3.7 and 24 GHz that can be used for wireless broadband. But, the current focus of the proceeding is on the 3.7 to 4.2 and 6 GHz bands.

Recently, an ad-hoc coalition of equipment manufacturers, wireless providers, and unlicensed users has identified how best to open the 3.7 to 4.2 GHz band, which is in close proximity to the 3.5 GHz PALs, for licensed mobile services, while protecting or accommodating satellite incumbents. Similarly, the 6 GHz band in the U.S. could be made available for unlicensed use, while protecting current and future terrestrial point-to-point systems. This is prime spectrum for the unlicensed community because it is adjacent to the 5 GHz band. Further, the Commission is currently performing tests to demonstrate that

unlicensed use can be permitted in the 5.9 GHz band, while protecting automobile safety systems from harmful interference. Combining all these unlicensed bands will allow for wider bandwidths and gigabit speeds.

*Upper/Millimeter Wave Bands*. In the upper bands, we expedited our Spectrum Frontiers proceeding to provide nearly 11 gigahertz of spectrum for mobile use in frequencies above 24 GHz. The Commission has opened up the 28, 37, 39 and the 64-71 GHz bands for both licensed and unlicensed uses. The Commission has also put mechanisms in place that will allow spectrum in some of these bands to be shared with incumbents, such as satellite and government users.

While allocating these bands is an important first step, additional spectrum is needed now and we also need to identify bands for the future. Therefore, the U.S. is currently considering whether to allocate even more spectrum in the millimeter wave bands for 5G and other uses. These bands include spectrum at 24, 32, 42, 47, 50 and 70/80 MHz. Ideally, I would like the Commission to move on all of these bands, but some may present fewer issues and can be considered sooner. As we identify additional bands, incumbency issues become more difficult to resolve. Basically, the easiest bands for reallocation have already been converted.

However, there are certain bands that are of great interest to manufacturers and providers, so I am hoping that these will be put to the front of the line. When talking to our respective industry, it is easy to identify a trend. For instance, there is great interest in the U.S. in 24 GHz and 42 GHz, as they are near the 28 GHz and 37 and 39 GHz bands the U.S. has already opened. Further, as devices can be manufactured to operate over tuning ranges, these frequencies are near bands that other countries are considering, such as 26 GHz, for 5G, creating opportunities for de facto global harmonization.

*Auctions*

Now that the FCC has identified spectrum bands, it is necessary to finalize rules to create the needed certainty to auction the spectrum. These auctions should occur as soon as possible, but at a minimum we should schedule them so that interested parties can plan appropriately.

Planning ahead is especially important, because the auction rules will need to be considered and implemented. As you are well aware, auction policy is rarely done hastily. Conversations with international colleagues, some of which are in this room, oftentimes center on how countries should formulate their auction and spectrum management policies. It is an obstacle course fraught with competing – and conflicting – goals and priorities. From revenue generation, to increased competition, to ubiquitous service, to technological innovation, these are just some of the issues governments try to promote through auction decisions.

For instance, focusing on revenue generation, such as having very high opening or reserve prices, could restrict bidder participation and potentially lead to a failed auction. Similarly, reauctioning licenses at the end of short license terms impedes buildout, since licensees are concerned about stranding investment if they are not successful in the reauction. If competition is a goal, oftentimes policies are put in place that would restrict participation of established providers, which can reduce revenues and delay improved and expanded services. If maximizing network construction or technological upgrades is a priority, incumbents, as opposed to favoring new entrants, are usually best positioned to serve hard to reach areas and meet more stringent buildout requirements, which may not sync with a country's competition goals. And, more stringent buildout requirements usually result in lower auction revenues.

I think you get my point that, while these are all laudable objectives, they cannot be accomplished at the same time within the parameters of a specific auction.

The U.S.'s spectrum management policy has been successful because of its general reliance on a free market approach. Our most successful auctions have been those where the Commission has kept it relatively simple. Identifying the spectrum band and implementing auction and licensing rules, which include longer license terms, renewability, appropriately sized market areas, commonsense opening bid prices, and reasonable, but strictly enforced, construction requirements, that do not favor certain entities, have been the components of successful auctions. The auction process then ensures that this valuable resource goes to the entity that values it the most and is the most likely to build out, innovate, and serve consumers.

*Other Spectrum-Based Initiatives*

But, our efforts are not confined to the wireless industry alone, the FCC has also been very active on space satellite and TV broadcast services.

In June, the FCC granted a request for a proposed next generation non-geostationary satellite orbit (NGSO) fixed-satellite system to access the U.S. market. These large satellite constellations hold the promise of ubiquitous broadband deployment, offering citizens of rural and remote communities the opportunity and benefits of connectivity. The Commission is also planning to consider an order implementing technical rules for these NGSO systems very soon.

In addition, over the past year, we have approved several next-generation high-throughput geosynchronous orbit (GSO) satellites, which have been launched, and should significantly increase available satellite broadband capacity and speeds. The FCC also started a proceeding to harmonize and streamline our rules for the growing satellite market for Earth Stations in Motion, where we also eliminated unnecessary application requirements, reporting requirements, and operating restrictions.

In the broadcast services, the FCC is currently considering new rules for the next generation of television using the ATSC 3.0 television standard on a voluntary, market-driven basis. Many broadcasters are looking forward to implementing this new technology, which will permit an enhanced, high-definition picture, along with an array of other features such as targeted ads, to be broadcast using less bandwidth. Broadcasters also perceive having the ability to deliver their offerings to mobile devices and using the remaining spectrum to potentially provide data services. Hopefully, the Commission will vote on an order this fall.

*WRC-19*

On the international front, these domestic priorities and decisions are reflected in our U.S. positions for WRC-19, including Agenda Item 1.13, seeking additional spectrum for mobile broadband, Agenda Item 1.6 facilitating new NGSO constellations, Agenda Item 1.16 considering increased Wi-Fi or RLAN use.

But we recognize that our success at WRC-19 will be driven not by one country but by our entire region coming together to agree on our priorities. The Conferences this week offer us a chance to exchange views and experiences on our respective national priorities and regulatory actions so that we can learn from one another and collectively take a more progressive and future-looking approach towards spectrum management and harmonization. And our success globally starts with our Regional objectives

and endeavors. Using our collective national actions and experiences, we must come together to agree on our collective priorities for the Region and then translate those into our Inter-American Proposals

The Americas region has a great opportunity to play a leadership role at and to drive the outcomes of WRC-19. We already have one agreed Proposal for WRC-19 from our most recent meeting in Orlando. I was also very pleased that our region was able to attain four draft Inter-American Proposals in Orlando. And while not focused on spectrum, I think it is also important to highlight that we were able to recently agree on 29 Inter-American Proposals for the upcoming ITU World Telecom Development Conference at the PCC.I meeting in Mexico City. This demonstrates our region's ability to come together on spectrum and technology policy priorities in order to put forward strong regional views on the global stage. I would like us to build upon this strong foundation of collaboration as we prepare our region for WRC-19.

I thank you for taking the time to listen to me. I look forward to learning about your spectrum priorities and initiatives, and please reach out to me and the FCC if we can be of assistance as you consider your future spectrum plans and as we all prepare for WRC-19.